Remarks/Arguments

In the Official Action mailed June 18, 2007, the examiner rejected claims 1-6 under 35 U.S.C. § 103(a) over U.S. Patent No. 5,708,162 to Hillbig et al. Additionally, claims 7-12 stand rejected under 35 U.S.C. § 102(b) over U.S. Patent No. 4,071,462 to Matsunaga.

In the present Amendment, applicants have amended the claims which, when considered with the following distinguishing remarks, is believed to place the present case in condition for allowance. Favorable reconsideration of all the pending claims is respectfully requested.

The Invention

In the prior art, it is generally known to make low viscous high solids solution of CMC by **alternately** adding CMC and hydrogen peroxide to water. This process is rather slow and the additions have to be carried out alternately, i.e., stepwise. Accordingly, the process is rather laborious and time consuming. Further, it is not possible to add large amount of CMC at once to obtain a high solids content solution since, due to the slow reaction, the viscosity should rise to unacceptable values at which no mixing would be possible.

In accordance with the claimed invention, it was discovered that the reaction could be greatly accelerated by adding base to the CMC/depolymerization reagent mixture. In fact, the reaction was so quick that there was no need for the stepwise/alternate addition of CMC and depolymerization reagent to the reaction mixture. Accordingly, the claimed invention relates to a process of making a low viscous solution by dissolving a polysaccharide in water and adding a basic depolymerization reagent or a depolymerization reagent and a base to the reaction mixture.

The invention is also directed to a blend of all the solids, which can be made into a low viscous solution subsequently adding the blend to the water. Making a blend of the different reagents is a product which can easily be sold to and handled by customers.

I. The Rejection of Claims 1-6 under 35 U.S.C. § 103(a) over to Hillbig et al.

Hillbig et al. discloses a process for preparing low molecular weight polysaccharide ethers by oxidatively degrading relatively high molecular weight polysaccharide ethers in **suspension** by adding a perborate and a base to said suspension. As is clear from col. 6, lines 10-13, the process takes place in the presence of water. Additionally, from the examples, it is clear that the process encompasses the addition of polysaccharide compound to water and **in a later stage** the addition of a perborate compound to this aqueous system. In Example 2 referred to by the examiner, for example, it is clear that the polysaccharide is present in the aqueous slurry after which the perborate is added. Hillbig et al. clearly does not disclose or suggest the simultaneous addition of polysaccharide compound and alkaline depolymerization agent to the aqueous medium. Further, Hillbig et al. discloses the addition of isopropanol to the reaction medium. The use of organic solvents such as isopropanol is undesirable and presents a waste and environmental problem. It also increases the volume of the starting material and final product and thus adds to the manufacturing, storage and transportation costs. Furthermore, the low molecular weight polysaccharide ether suspension of Hillbig et al. are not suitable for use in, for example, the paper making industry, which requires aqueous solutions of low viscosity and high solids content. Hillbig's process does not lead to an aqueous solution of low viscosity and high solids content.

The present invention provides a process not having the disadvantageous of Hillbig et al. More specifically, the claimed process can be carried out in one step within an acceptable time period, with near complete consumption of the depolymerization agent. Additionally, the claimed process can easily make use of readily available polysaccharide ethers. The aforementioned objectives are achieved by the process of the claimed invention, which is characterized by the simultaneous addition of polysaccharide compound and alkaline depolymerization agent to the aqueous medium.

The unexpected advantages of the invention are clearly evident from the present examples. More specifically, in example 2, the sodium perborate was added to the aqueous system after the cellulose compound, and samples taken at 0.25 and 0.5 hrs. were found to have only 78 and 95% of the peroxide consumed. In example 3, all reactants were added simultaneously in accordance with the invention, and peroxide consumed was surprisingly found to be 99 and 100%, after only 0.25 and 0.5 hrs, respectively. Because consumption of the depolymerization agent is nearly complete in the process of the invention, in a relatively short timeframe, the resulting solution is safe and easier to handle, and ready for use in the industry without having to undergo further treatment. This is clearly not disclosed or suggested by Hillbig et al.

In view of the foregoing, applicants respectfully submit that Hillbig et al. cannot be reasonably construed as teaching the claimed process, or the unexpected benefits derived therefrom. The subject rejection is therefore believed to be improper; reconsideration and withdrawal thereof is respectfully requested.

II. The Rejection of Claims 7-12 under 35 U.S.C. § 102(b) over Matsunaga.

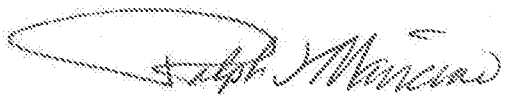
Claims 7-12 and new claim 13 are directed to a **dry blend of all the solids**, which can be made into a low viscous solution by the end customer simply by subsequently adding the blend to the water. This also avoids the shipment of large amounts of water, which is expensive and presents logistical issues.

Matsunaga discloses a process for the *preparation of sodium percarbonate or perborate*. In the process, a powdery detergent is blended with a small amount of carboxymethylcellulose by granulation. The resulting granulated product in, for example, Example 1, contains 0.0003 parts carboxymethylcellulose on 1 part sodium percarbonate, i.e., the **amount of sodium percarbonate is extremely high** compared to the amount of carboxymethylcellulose. As is derived from page 10, lines 18-25 of the present application, the composition of Matsunaga is not suitable for the preparation of aqueous solutions of low molecular weight polysaccharide ethers with high solids content as compositions according to the invention contain **low amounts of alkaline**

deplovmerization agent based on the total amount of carboxymethylcellulose. In view of the foregoing, applicants respectfully submit that one of ordinary skill in the art would not view Matsunaga as anticipating the claimed invention. The present rejection is therefore believed to be improper; reconsideration and withdrawal thereof is respectfully solicited.

Therefore, in view of the amendments and remarks herein, the present claims are believed top be in condition for allowance, which action is respectfully solicited.

Respectfully submitted,



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